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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/930,741	08/15/2001	Edwin Frank Rejda	1734.041US1	1976

7590 12/08/2005

Paul T Dietz  
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EXAMINER
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MCDONALD, RODNEY GLENN

ART UNIT	PAPER NUMBER
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1753

DATE MAILED: 12/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/930,741

Applicant(s)

REJDA ET AL.

Examiner

Rodney G. McDonald

Art Unit

1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 03 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 8-10,12-20 and 30-46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 8-10,12-16,20-35 and 39-43 is/are rejected.
- 7) ☒ Claim(s) 17-19,36-38 and 44-46 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

The indicated allowability of claims 13-16, 35 and 43 are withdrawn in view of the newly discovered reference(s) to Lueck (U.S. Pat. 3,400,687). Rejections based on the newly cited reference(s) follow.

#### ***Claim Rejections - 35 USC § 112***

Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8, line 8, is indefinite because "the property level" lacks antecedent basis. Should it be "electrical resistance"?

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 8-10, 30-33, 39-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hitoshi (Japan 09-243822) in view of Wu et al. (U.S. Pat. 6,045,671) and Lueck (U.S. Pat. 3,400,687).

Regarding claims 8, 30, 32, 33, 39, Hitoshi teach an element in the form of a substrate 1. A mask is located between the element and a source. An actuator 5 moves the mask. A controller 7 moves the mask 4 by controlling the drive means 5 based on a film thickness deposited on the substrate 1 through monitoring device 6. (See Abstract)

The differences between Hitoshi and the present claims is the mask including first and second shutters independently actuatable is not discussed (Claim 8), the measurement of the electrical resistance is not discussed (Claims 8, 30, 33, 39, 41) the mask being a dynamic mask is not discussed (Claims 9, 31, 40 ), the actuation of the first and second shutters (claim 10) and the carrier is not discussed (Claim 30, 39).

Regarding the mask having first and second shutters of claim 8, Wu et al. teach a mask in Figure 5 that utilizes first and second shutters to form thickness gradients on a substrate. The shutters are equipped with feedback mechanisms for controlling the position of the shutters. (Column 16 lines 33-68; Column 17 lines 1-38; Column 18 lines 13-19)

Regarding the mask being a dynamic mask of claims 9, 31, 40, Wu et al. teach that each mask can be driven independently. (Column 17 lines 13-15)

Regarding the actuation of the first and second shutters of claim 10, Wu et al. teach that the masks can have shutters that are actuated to form deposits on the substrate. (Column 17 lines 13-15)

Regarding the carrier for the element (Claim 30,39), Wu et al. suggest that a carrier is needed for holding the substrates. (Column 24 lines 41-42)

The motivation for utilizing a mask including first and second shutters, utilizing a mask being a dynamic mask, actuating the first and second shutters independently and utilizing a carrier is that it allows for depositing films on a substrate. (Column 1 lines 35-40)

Regarding the measurement of the electrical resistance of claims 8, 30, 33, 39, 41, Hitoshi discussed above teach actuating a shutter in response to a measured property level (i.e. thickness). Lueck teach that a property level to be measured can include electrical resistance and therefore one could modify Hitoshi by measuring electrical resistance instead of thickness since both properties are related. (See Lueck Column 4 lines 8-75; Column 5 lines 1-7)

The motivation for monitoring the electrical resistance is that it allows to control properties of the deposited film. (Column 4 lines 8-75; Column 5 lines 1-7)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Hitoshi by utilizing a mask including first and second shutters, a mask being a dynamic mask, actuating the first and second shutters independently and utilizing a carrier as taught by Wu et al. and to have

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measured electrical resistance as taught by Lueck because it allows for deposition of thin films on substrates and control of film properties.

Claims 12, 13, 14, 15, 16, 34, 35, 42, 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hitoshi in view of Wu et al. and Lueck (U.S. Pat. 3,400,687) as applied to claims above, and further in view of Nakazawa et al. (U.S. Pat. 6,074,707).

Regarding claims 13, 35, 43 the measurement of electrical resistance and control of shutters in response to the measured property is discussed above. (See Hitoshi in view of Wu et al. and Lueck)

The difference not yet discussed is deposition on magneto resistive elements (Claims 12, 34, 42) and the width of the shutter having a width larger than at least one of the magneto resistive elements is not discussed (Claims 14, 15, 16)

Regarding claims 12, Nakazawa et al. teach depositing on magnetoresistive elements. (See Abstract)

Regarding the width of the shutter having a width larger than at least one of the magneto resistive elements (Claims 14, 15, 16), Wu et al. discussed above clearly show the shutters being larger than the at least one magnetoresistive elements of Nakazawa. (See Wu et al. discussed above)

The motivation for depositing on magnetoresistive elements it that it allows formation of films for magnetic heads and the like. (Column 1 lines 8-10)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have deposited on magnetoresistive elements as taught by Nakazawa et al. because it allows for producing magnetic heads.

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Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hitoshi in view of Wu et al. as applied to claims above, and further in view of Wilmanns (U.S. Pat 4,024,291).

The difference not yet discussed is the multiple substrates.

Wilmanns teach depositing on multiple substrates in a vapor deposition device.  
(Column 4 lines 16-19)

The motivation for depositing on multiple substrates is that it allows for coating multiple objects. (Column 4 lines 16-19)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized multiple substrates as taught by Wilmanns because it allows for coating multiple objects.

***Allowable Subject Matter***

Claims 17-19, 36-38, 44-46 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 17, 18, 36, 37, 44, 45 are allowable over the prior art of record because the prior art of record does not teach the claimed subject matter including ion milling a magnetoresistive element including the control of the mask based upon an electrical property level measured.

Claims 19, 38 and 46 are allowable over the prior art of record because the prior art of record does not teach the claimed subject matter including processing a magnetoresistive element including the control of the mask based upon an electrical

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property level measured where the electrical property measured is related to the stripe height of the magnetoresistive element.

***Response to Arguments***

Applicant's arguments with respect to have been considered but are moot in view of the new ground(s) of rejection.

In response to the argument that the prior art does not teach monitoring the electrical resistance level to control the shutters, it is argued that newly cited reference to Lueck teaches monitoring the electrical resistance level. Since the primary reference teaches utilizing a monitored value such as thickness which directly relates to electrical resistance of the film deposited as established by Lueck it would be obvious to one of ordinary skill in the art to have utilized measured resistance to control a shutter in lieu of measured film thickness.

This action will be made NON-Final based upon the newly cited reference.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney G. McDonald whose telephone number is 571-272-1340. The examiner can normally be reached on M- Th with Every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X. Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Rodney G. McDonald  
Primary Examiner  
Art Unit 1753

RM  
December 1, 2005

Sept. 10, 1968

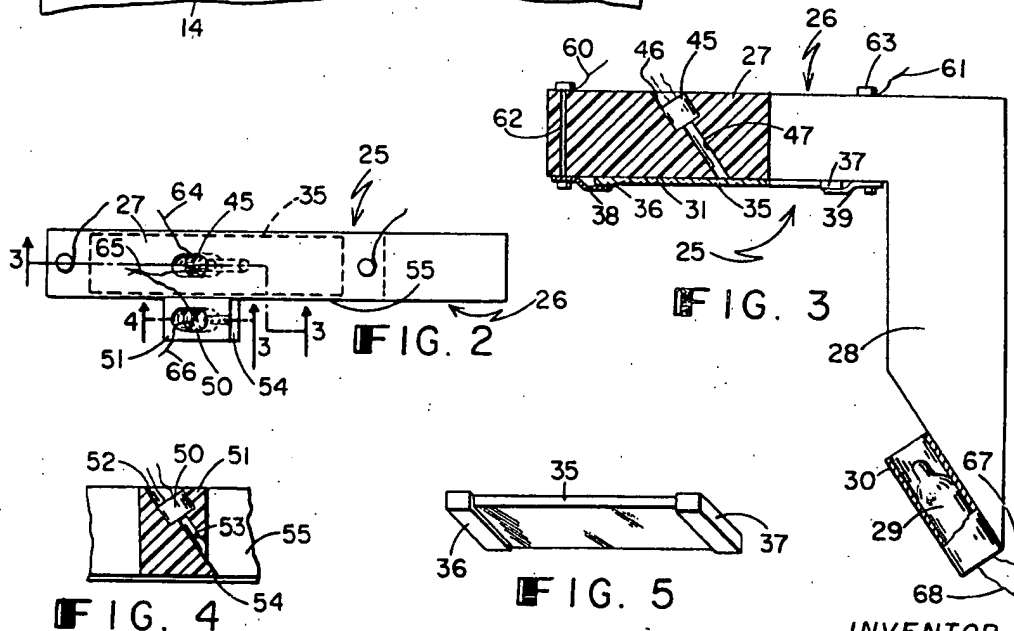
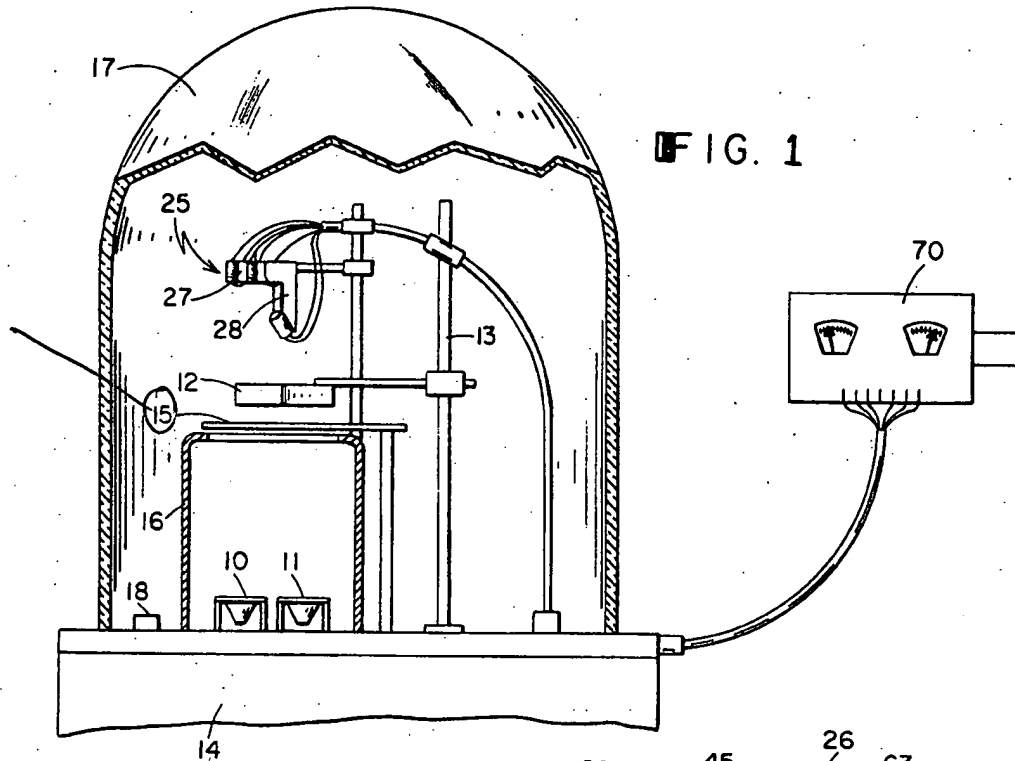
A. M. LUECK

3,400,687

FILM THICKNESS MONITORING APPARATUS

Filed Feb. 25, 1966

2 Sheets-Sheet 1



INVENTOR.  
ARTHUR M. LUECK

BY David M. Kay

AGENT.

**Sept. 10, 1968**

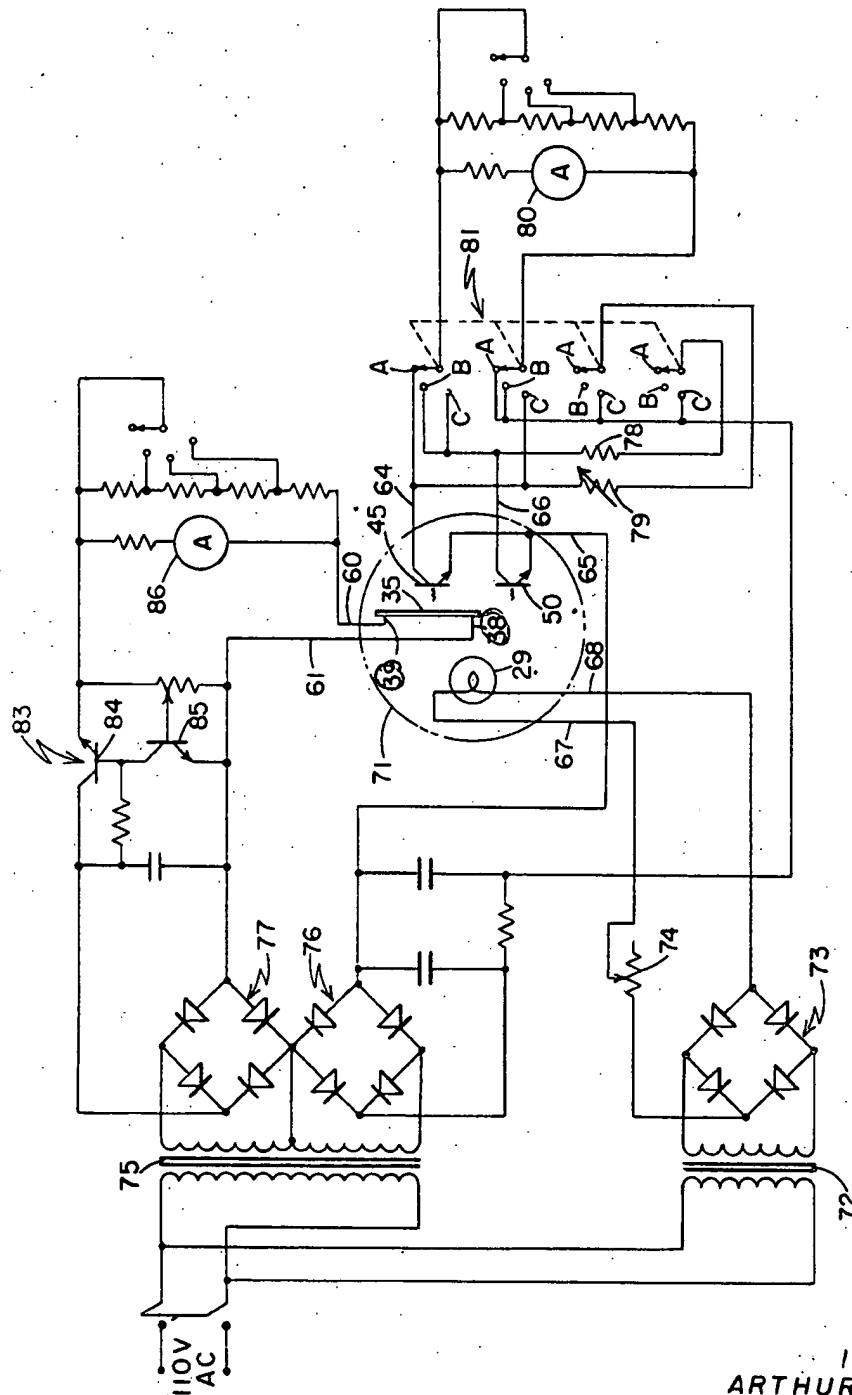
A. M. LUECK

**3,400,687**

# FILM THICKNESS MONITORING APPARATUS

Filed Feb. 25, 1966

2 Sheets-Sheet 2



**FIG. 6**

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